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(54) Integrated circuit comprising a capacitor and method

(57) A via etch to contact a capacitor with ferroelectric between electrodes together with dielectric on an insulating diffusion barrier includes two-step etch with F-based dielectric etch and Cl- and F-based barrier etch.

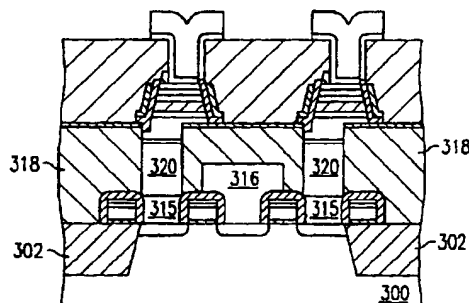


FIG. 6f

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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 2911

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Place of search BERLIN		Date of completion of the search 19 July 2000	Examiner Polesello, P
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BERLIN		19 July 2000	Polesello, P
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The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 19 July 2000	Examiner Polesello, P
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet 8

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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LACK OF UNITY OF INVENTION
SHEET B

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1,2

Method of plasma etching a material using a Ti/Al nitride hardmask.

2. Claims: 3-5

Method of forming a ferroelectric capacitor with a bottom and a top diffusion barriers consisting of plasma etching a stack of these materials.

3. Claim : 6

Method of forming a capacitor where the bottom electrode is surface oxidized before dielectric deposition.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 20 2911

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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